

## **5.5. IBOC Performance in the Presence of Airplane Flutter (NRSC C.2)**

Table 19 summarizes the interference scenarios of the objective performance tests of the digital IBOC system in the presence of airplane flutter (NRSC C.2). In addition, a single upper first adjacent interferer was also introduced at a +6 dB D/U in some cases. The BLER was measured for various types of airplane flutter multipath. Subjective recordings were also made. Table 20 tabulates the subjective test scenarios.

**Table 19 – IBOC Performance Scenarios  
– Airplane Flutter Interference (NRSC.C.2)**

#	Lower F <sup>c</sup> adj.	Desired	Multipath Type	BLER
5651		Hybrid: Moderate	Airplane 400	0.0
5652	Hybrid: +6dB	Hybrid: Moderate	Airplane 400	0.0
5653		Hybrid: Moderate	Airplane 200	0.0
5654	Hybrid: +6dB	Hybrid: Moderate	Airplane 200	0.0
5655		Hybrid: Moderate	Airplane 100	0.0
5656	Hybrid: +6dB	Hybrid: Moderate	Airplane 100	0.0

**Table 20 – Subjective Test Scenarios – Airplane Flutter Interference (NRSC C.2)**

#	Lower F <sup>c</sup> adj.	Desired	Multipath Type	RX	Audio Cut
5701		Hybrid: Moderate	Airplane 400	IBOC	Debussy
5702		Analog: Moderate	Airplane 400	1 Hi-Fi, 1 Portable	Debussy
5703	Hybrid: +6dB	Hybrid: Moderate	Airplane 400	IBOC	Carmen
5704	Analog: +6dB	Analog: Moderate	Airplane 400	1 Hi-Fi, 1 Portable	Carmen
5705		Hybrid: Moderate	Airplane 200	IBOC	1812
5706		Analog: Moderate	Airplane 200	1 Hi-Fi, 1 Portable	1812
5707	Hybrid: +6dB	Hybrid: Moderate	Airplane 200	IBOC	Bach
5708	Analog: +6dB	Analog: Moderate	Airplane 200	1 Hi-Fi, 1 Portable	Bach
5709		Hybrid: Moderate	Airplane 100	IBOC	Messiah
5710		Analog: Moderate	Airplane 100	1 Hi-Fi, 1 Portable	Messiah
5711	Hybrid: +6dB	Hybrid: Moderate	Airplane 100	IBOC	Stravinsky
5712	Analog: +6dB	Analog: Moderate	Airplane 100	1 Hi-Fi, 1 Portable	Stravinsky

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### 5.6. IBOC Performance in the Presence of Adjacent and Co-Channel Interference (NRSC D)

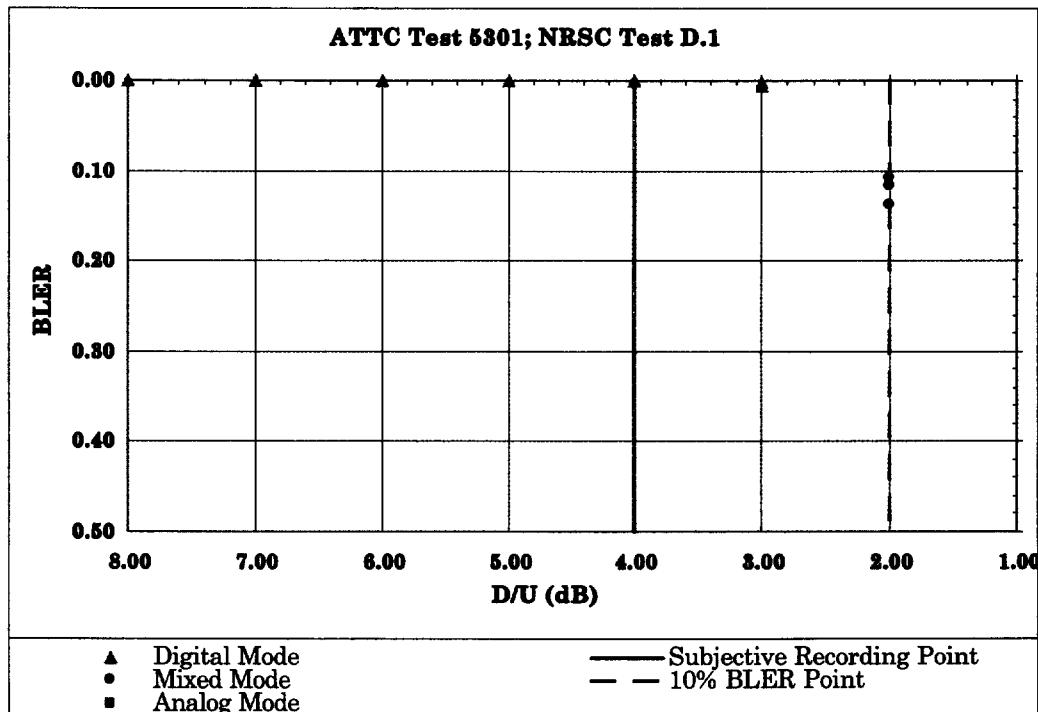
The objective performance of the digital IBOC system was measured in the presence of adjacent channel and co-channel interference. The BLER was measured as a function of the D/U ratio in order to establish the point at which the block error rate reached 10 percent (*10% BLER*). The 10% BLER point was used to establish the interference level (U) for subsequent subjective recordings.

#### 5.6.1. IBOC Performance in the Presence of Co-Channel Interference (NRSC D.1)

Table 21 summarizes the interference scenario for the objective performance test of the digital IBOC system in the presence of co-channel interference (NRSC D.1). Figure 20 illustrates the measurements at D/U ratios above and below *10% BLER*. The 10% BLER point minus 2 dB was used to establish the interference level for the subsequent subjective recordings. Table 22 tabulates the subjective compatibility test scenarios.

**Table 21 – IBOC Performance Scenario – Co-Channel Interference (NRSC D.1)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj.	Co-Channel
5301			Hybrid: Moderate			Hybrid: Variable



**Figure 20 - Objective Test Results – Digital IBOC System Performance in the Presence of Co-Channel Interference (NRSC D.1)**

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**Table 22 – Subjective Test Scenarios – Co-Channel Interference (NRSC D.1)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj	Co-Channel	RX	Audio Cut
5351			Hybrid: Moderate			Hybrid: 10% BLER-2dB	IBOC	Messiah
5352			Analog: Moderate			Analog: 10% BLER-2dB	1 Auto, 1 Hi-Fi	Messiah
5353			Hybrid: Moderate			Hybrid: 10% BLER-2dB	IBOC	Earth
5354			Analog: Moderate			Analog: 10% BLER-2dB	1 Auto, 1 Hi-Fi	Earth

**5.6.2. IBOC Performance in the Presence of Single and Dual First-Adjacent Channel Interference (NRSC D.2)**

Table 23 summarizes the interference scenario for the objective performance test of the digital IBOC system in the presence of single and dual first-adjacent channel interference (NRSC D.2). Figure 21 and Figure 22 illustrate the measurements at D/U ratios above and below 10% BLER. The 10% BLER point minus 2 dB was used to establish the interference level for the subsequent subjective recordings. Table 24 tabulates the subjective test scenarios.

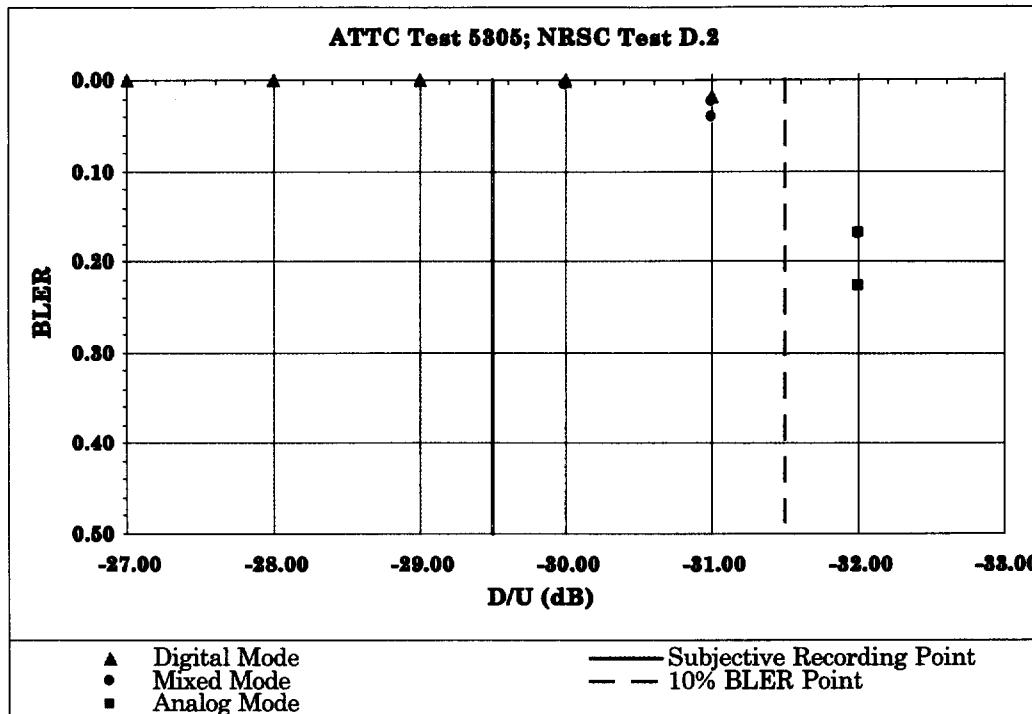
**Table 23 – IBOC Performance Scenarios  
– Single and Dual First-Adjacent Channel Interference (NRSC D.2)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj	Co-Channel
5305		Hybrid: Variable	Hybrid: Moderate			
5309		Hybrid: Variable	Hybrid: Moderate	Hybrid: +6dB		

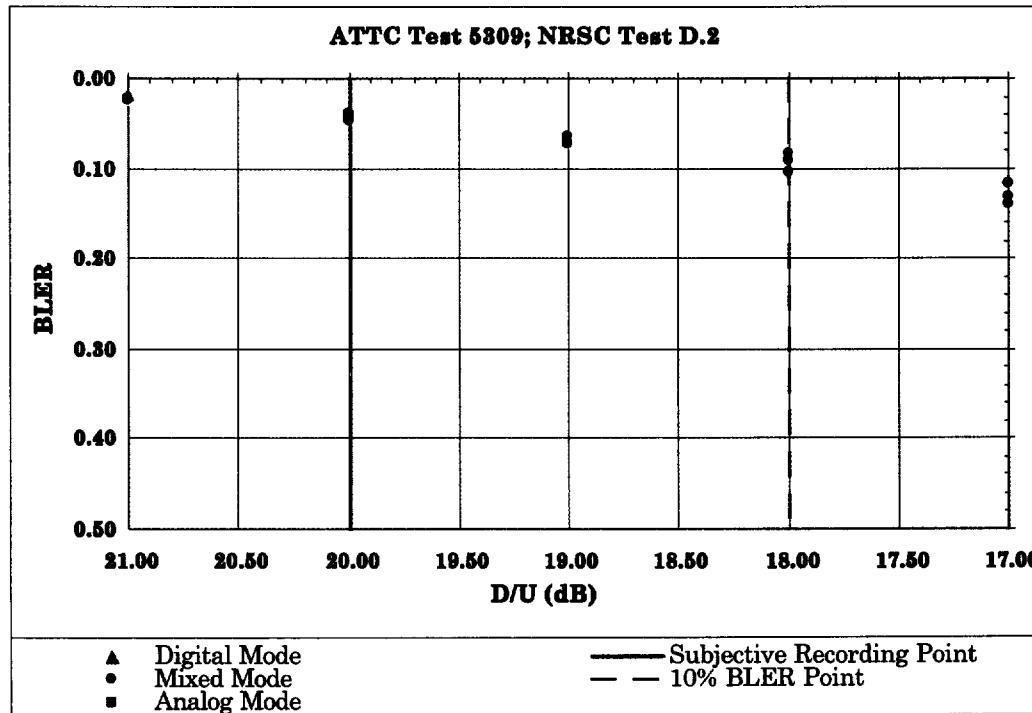
**Table 24 – Subjective Test Scenarios – Single and Dual First-Adjacent Interference (NRSC D.2)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj	Co-Channel	RX	Audio Cut
5355		Hybrid: 10% BLER-2dB	Hybrid: Moderate				IBOC	Stravinsky
5356		Analog: 10% BLER-2dB	Analog: Moderate				2 Auto, 1 Hi-Fi, 1 Portable	Stravinsky
5357		Hybrid: 10% BLER-2dB	Hybrid: Moderate				IBOC	CSNY
5358		Analog: 10% BLER-2dB	Analog: Moderate				2 Auto, 1 Hi-Fi, 1 Portable	CSNY
5359		Hybrid: 10% BLER-2dB	Hybrid: Moderate	Hybrid: +6dB			IBOC	Saito
5360		Analog: 10% BLER-2dB	Analog: Moderate	Analog: +6dB			2 Auto, 1 Hi-Fi, 1 Portable	Saito
5361		Hybrid: 10% BLER-2dB	Hybrid: Moderate	Hybrid: +6dB			IBOC	Vega
5362		Analog: 10% BLER-2dB	Analog: Moderate	Analog: +6dB			2 Auto, 1 Hi-Fi, 1 Portable	Vega

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**Figure 21 - Objective Test Results – Digital IBOC System Performance in the Presence of Single First-Adjacent Channel Interference (NRSC D.2)**



**Figure 22 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual First-Adjacent Channel Interference (NRSC D.2)**

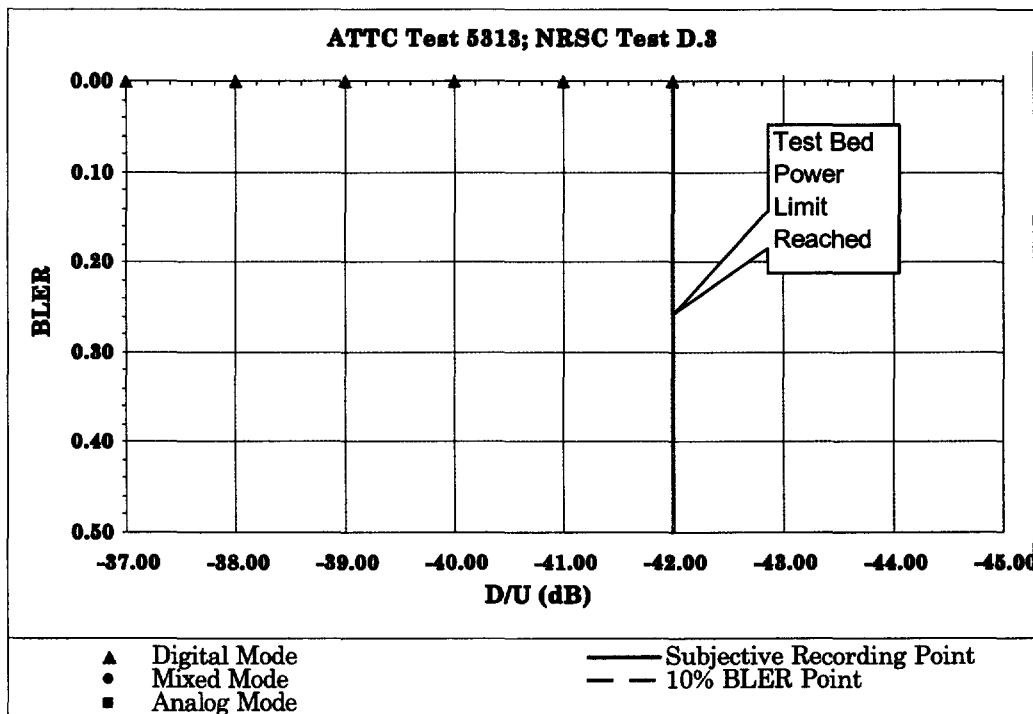
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### **5.6.3. IBOC Performance in the Presence of Single and Dual Second-Adjacent and Simultaneous Single Second- and Single First-Adjacent Channel Interference (NRSC D.3)**

Table 25 summarizes the interference scenario for the objective performance test of the digital IBOC system in the presence of single and dual second-adjacent channel interference as well as simultaneous single second-adjacent and single first-adjacent channel interference (NRSC D.3). Figure 23 through Figure 25 illustrate the measurements at D/U ratios above and below *10% BLER*. The 10% BLER point minus 2 dB was used to establish the interference level for the subsequent subjective recordings. Table 26 tabulates the subjective test scenarios.

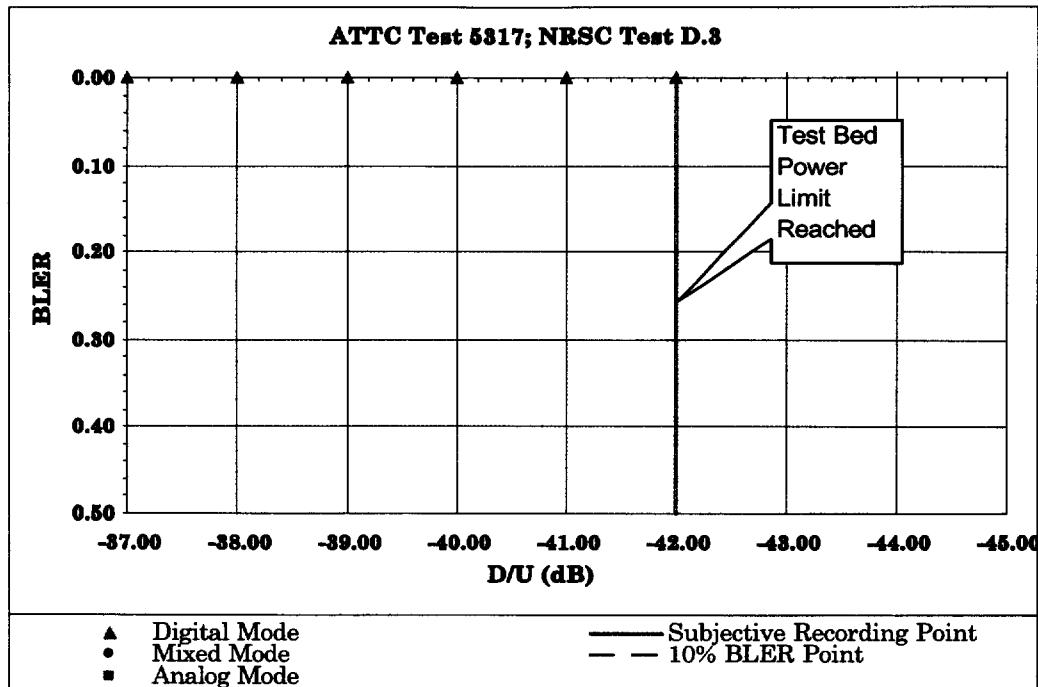
**Table 25 – IBOC Performance Scenarios – Single and Dual Second-Adjacent and Simultaneous Single Second- and Single First-Adjacent Channel Interference (NRSC D.3)**

#	Lower 2 <sup>d</sup> adj.	Lower F <sup>t</sup> adj.	Desired	Upper F <sup>t</sup> adj.	Upper 2 <sup>d</sup> adj	Co-Channel
5313	Hybrid: Variable		Hybrid: Moderate			
5317	Hybrid: Variable		Hybrid: Moderate	Hybrid: +6dB		
5321	Hybrid: Variable		Hybrid: Moderate		Hybrid: -20dB	

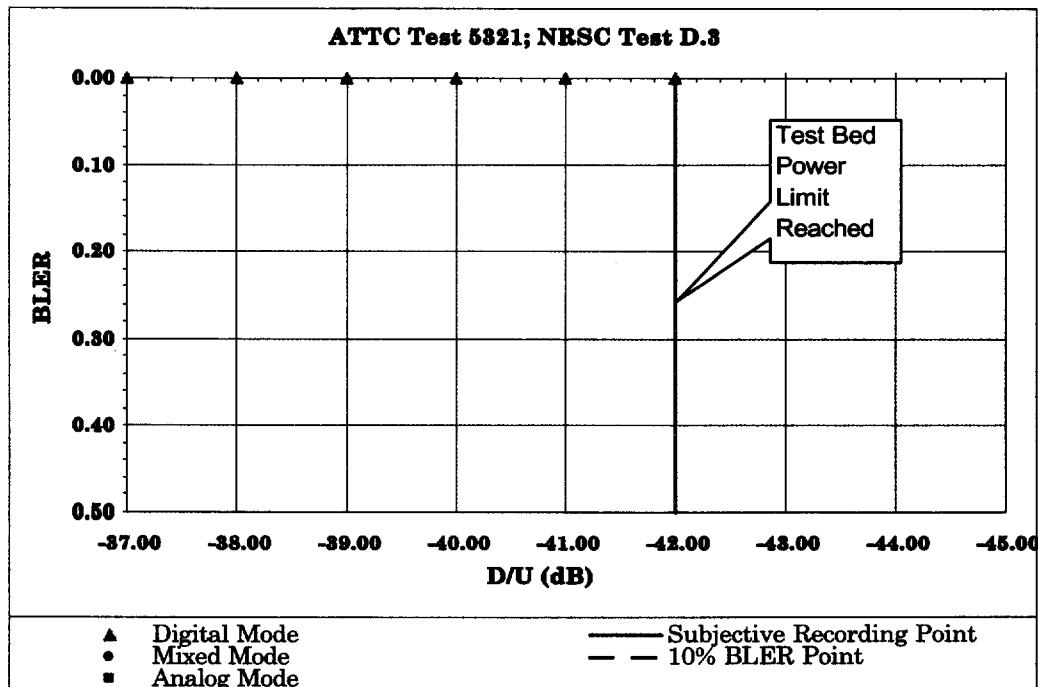


**Figure 23 - Objective Test Results – Digital IBOC System Performance in the Presence of Single Second-Adjacent Channel Interference (NRSC D.3)**

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**Figure 24 - Objective Test Results – Digital IBOC System Performance in the Presence of Simultaneous Single Second- and Single First-Adjacent Channel Interference (NRSC D.3)**



**Figure 25 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual Second-Adjacent Channel Interference (NRSC D.3)**

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**Table 26 – Subjective Test Scenarios – Single and Dual Second-Adjacent and Simultaneous Single Second- and Single First-Adjacent Channel Interference (NRSC D.8)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj.	Co-Channel	RX	Audio Cut
5363	Hybrid: 10% BLER – 2dB		Hybrid: Moderate				IBOC	Debussy
5364	Analog: 10% BLER – 2dB		Analog: Moderate				1 Hi-Fi, 1 Portable	Debussy
5365	Hybrid: 10% BLER – 2dB		Hybrid: Moderate				IBOC	Travis
5366	Analog: 10% BLER – 2dB		Analog: Moderate				1 Hi-Fi, 1 Portable	Travis
5367	Hybrid: 10% BLER – 2dB		Hybrid: Moderate	Hybrid: +6dB			IBOC	1812
5368	Analog: 10% BLER – 2dB		Analog: Moderate	Analog: +6dB			1 Hi-Fi, 1 Portable	1812
5369	Hybrid: 10% BLER – 2dB		Hybrid: Moderate	Hybrid: +6dB			IBOC	REO
5370	Analog: 10% BLER – 2dB		Analog: Moderate	Analog: +6dB			1 Hi-Fi, 1 Portable	REO
5371	Hybrid: 10% BLER – 2dB		Hybrid: Moderate		Hybrid: -20dB		IBOC	Ibert
5372	Analog: 10% BLER – 2dB		Analog: Moderate		Analog: -20dB		1 Hi-Fi, 1 Portable	Ibert
5373	Hybrid: 10% BLER – 2dB		Hybrid: Moderate		Hybrid: -20dB		IBOC	Grant
5374	Analog: 10% BLER – 2dB		Analog: Moderate		Analog: -20dB		1 Hi-Fi, 1 Portable	Grant

## **5.7. IBOC Performance in the Presence of Adjacent and Co-Channel Interference and Multipath (NRSC E)**

The objective performance of the digital IBOC system was measured in the presence of adjacent channel and co-channel interference in addition to multipath. The BLER was measured as a function of the D/U ratio in order to establish the point at which the block error rate reached 10 percent (*10% BLER*). The 10% BLER point was used to establish the interference level (U) for subsequent subjective recordings.

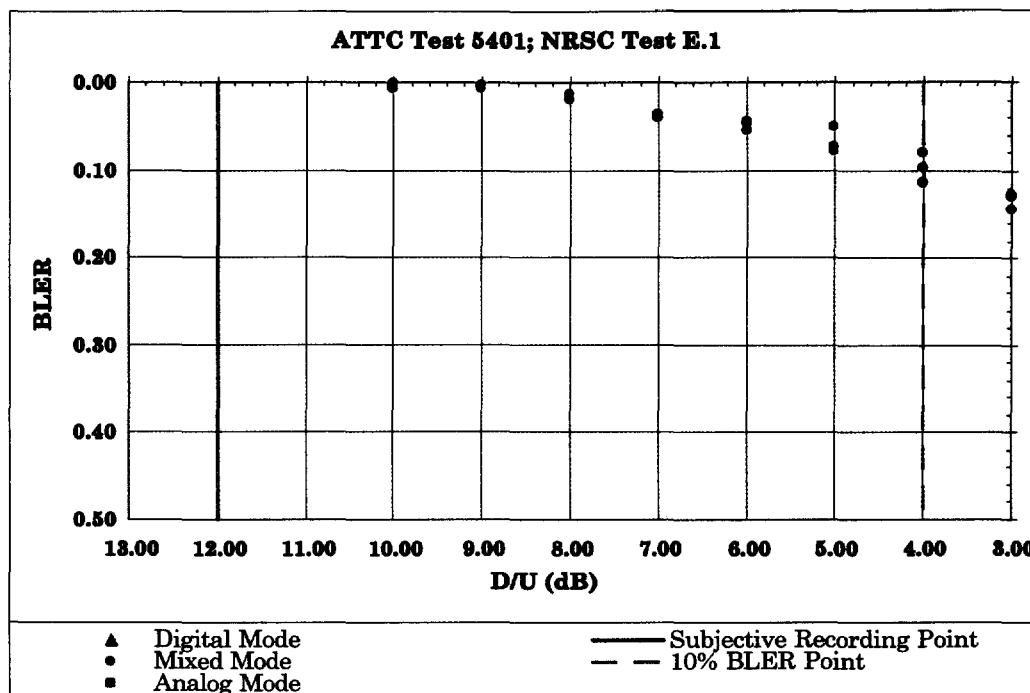
### **5.7.1. IBOC Performance in the Presence of Co-Channel and Multipath Interference (NRSC E.1)**

Table 27 summarizes the interference scenarios for the objective performance test of the digital IBOC system in the presence of co-channel and multipath interference (NRSC E.1). Figure 26 through Figure 29 illustrate the measurements at D/U ratios above and below *10% BLER*. The 10% BLER point minus 8 dB was used to establish the interference level for the subsequent subjective recordings. Table 28 tabulates the subjective test scenarios.

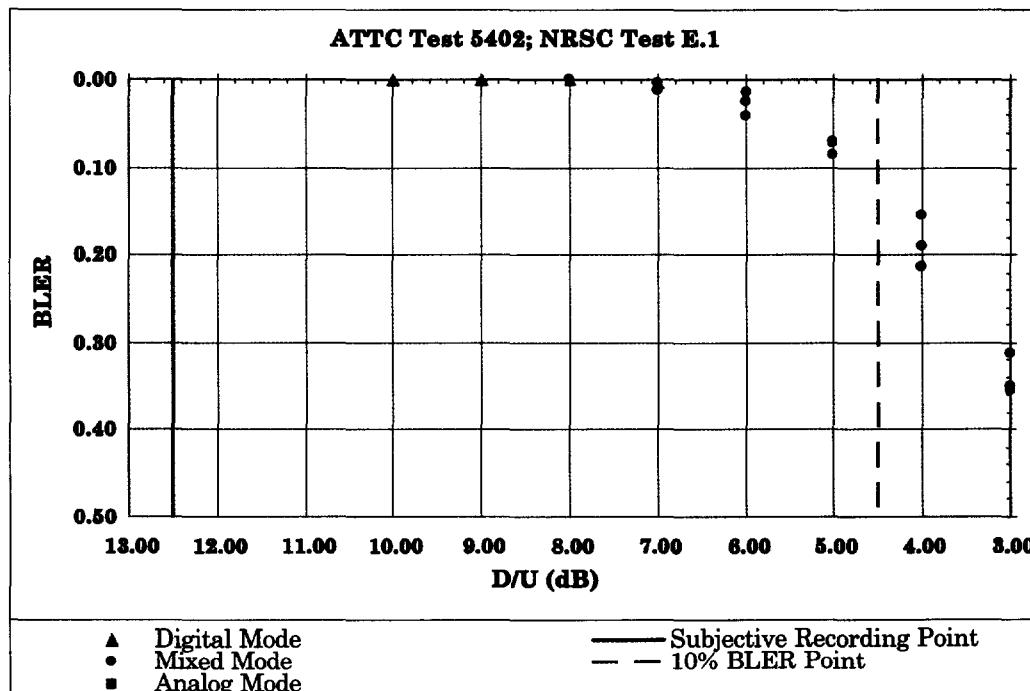
**Table 27 - IBOC Performance Scenarios  
– Co-Channel and Multipath Interference (NRSC E.1)**

#	Lower $\frac{2^d}{I^t}$ adj.	Lower $\frac{1^t}{I^t}$ adj.	Desired	Upper $\frac{1^t}{I^t}$ adj.	Upper $\frac{2^d}{I^t}$ adj.	Co-Channel	Multipath
5401			Hybrid: Moderate			Hybrid: Variable	US
5402			Hybrid: Moderate			Hybrid: Variable	UF
5403			Hybrid: Moderate			Hybrid: Variable	TO
5404			Hybrid: Moderate			Hybrid: Variable	RF

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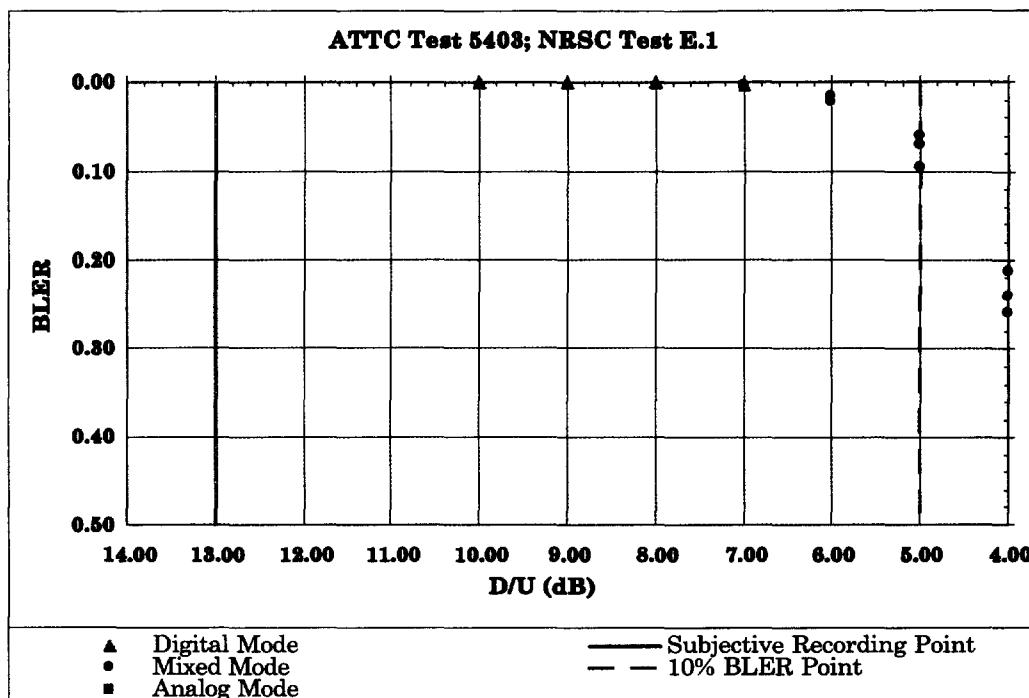


**Figure 26 - Objective Test Results – Digital IBOC System Performance in the Presence of Co-Channel and Urban Slow Multipath Interference (NRSC E.1)**

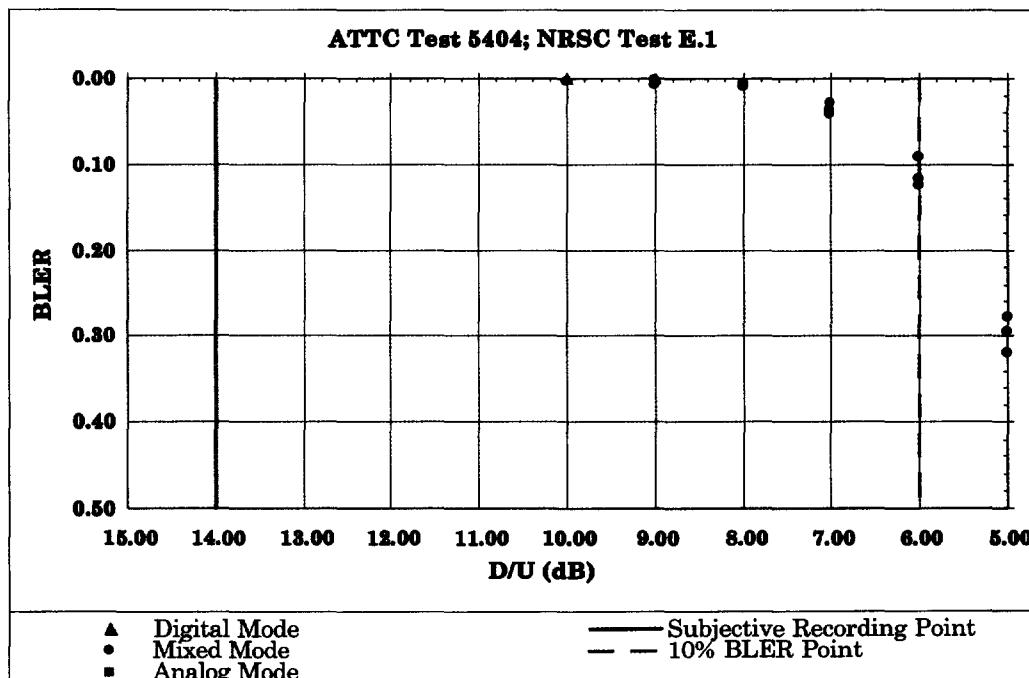


**Figure 27 - Objective Test Results – Digital IBOC System Performance in the Presence of Co-Channel and Urban Fast Multipath Interference (NRSC E.1)**

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**Figure 28 - Objective Test Results – Digital IBOC System Performance in the Presence of Co-Channel and Terrain Obstructed Multipath Interference (NRSC E.1)**



**Figure 29 - Objective Test Results – Digital IBOC System Performance in the Presence of Co-Channel and Rural Fast Multipath Interference (NRSC E.1)**

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**Table 28 – Subjective Test Scenarios – Co-Channel and Multipath Interference  
(NRSC E.1)**

<b>#</b>	<b>Lower 2<sup>nd</sup> adj.</b>	<b>Lower 1<sup>st</sup> adj.</b>	<b>Desired</b>	<b>Upper 1<sup>st</sup> adj.</b>	<b>Upper 2<sup>nd</sup> adj</b>	<b>Co-Channel</b>	<b>Multipath</b>	<b>RX</b>	<b>Audio Cut</b>
6001			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	US	IBOC	Carmen
6002			Analog: Moderate			Analog: 10% BLER – 8dB	US	2 Auto	Carmen
6003			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	US	IBOC	Stansfield
6004			Analog: Moderate			Analog: 10% BLER – 8dB	US	2 Auto	Stansfield
6005			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	UF	IBOC	Messiah
6006			Analog: Moderate			Analog: 10% BLER – 8dB	UF	2 Auto	Messiah
6007			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	UF	IBOC	Basil
6008			Analog: Moderate			Analog: 10% BLER – 8dB	UF	2 Auto	Basil
6009			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	TO	IBOC	Ibert
6010			Analog: Moderate			Analog: 10% BLER – 8dB	TO	2 Auto	Ibert
6011			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	TO	IBOC	CSNY
6012			Analog: Moderate			Analog: 10% BLER – 8dB	TO	2 Auto	CSNY
6013			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	RF	IBOC	Stravinsky
6014			Analog: Moderate			Analog: 10% BLER – 8dB	RF	2 Auto	Stravinsky
6015			Hybrid: Moderate			Hybrid: 10% BLER – 8dB	RF	IBOC	Clapton
6016			Analog: Moderate			Analog: 10% BLER – 8dB	RF	2 Auto	Clapton

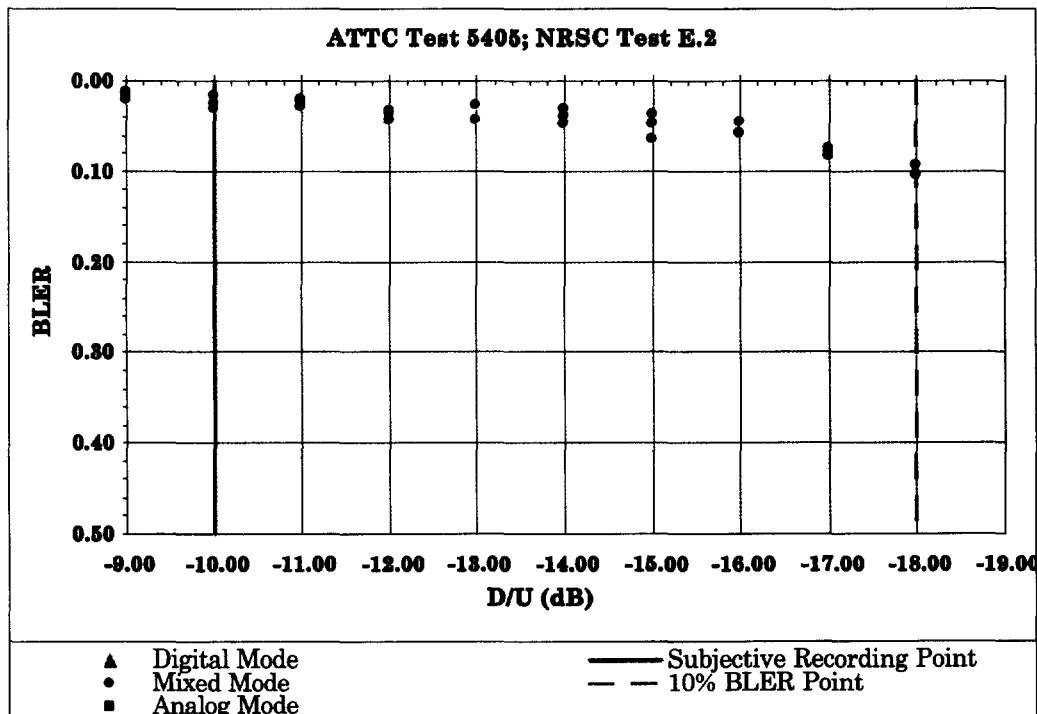
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### 5.7.2. IBOC Performance in the Presence of Single and Dual First-Adjacent Channel and Multipath Interference (NRSC E.2)

Table 29 summarizes the interference scenario for the objective performance test of the digital IBOC system in the presence of single and dual first-adjacent channel interference (NRSC E.2). Figure 30 through Figure 37 illustrate the measurements at D/U ratios above and below 10% BLER. The 10% BLER point minus 8 dB was used to establish the interference level for the subsequent subjective recordings. Table 30 tabulates the subjective test scenarios.

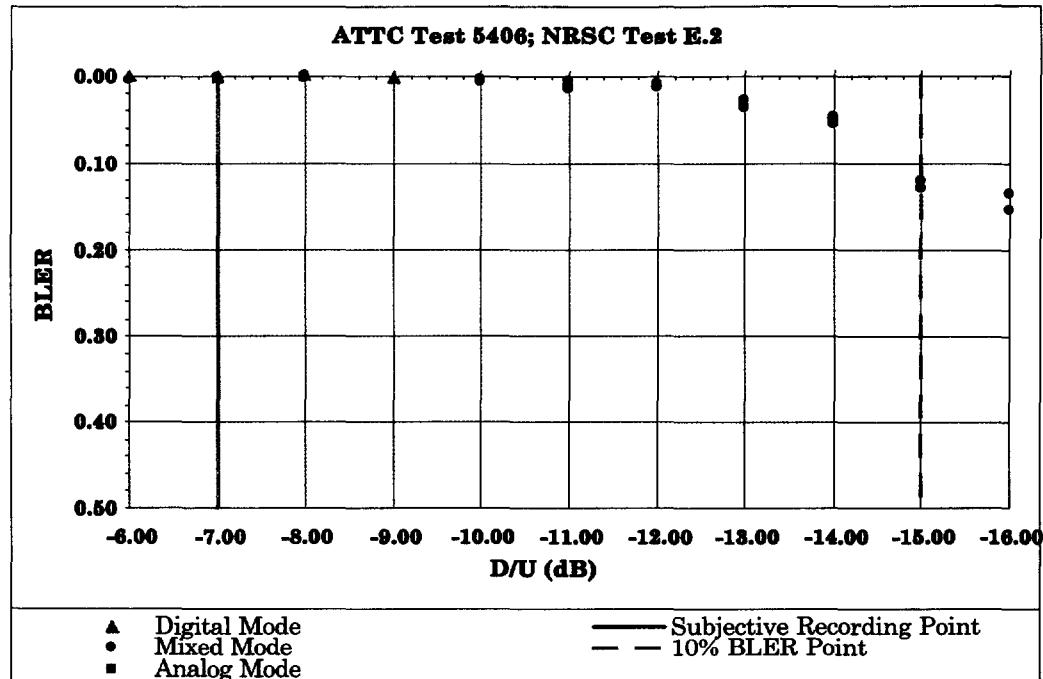
**Table 29 – IBOC Performance Scenarios – Single and Dual First-Adjacent Channel and Multipath Interference (NRSC E.2)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj.	Co-Channel	Multipath
5405		Hybrid: Variable	Hybrid: Moderate				US
5406		Hybrid: Variable	Hybrid: Moderate				UF
5407		Hybrid: Variable	Hybrid: Moderate				TO
5408		Hybrid: Variable	Hybrid: Moderate				RF
5409		Hybrid: Variable	Hybrid: Moderate	Hybrid: +6dB			US
5410		Hybrid: Variable	Hybrid: Moderate	Hybrid: +6dB			UF
5411		Hybrid: Variable	Hybrid: Moderate	Hybrid: +6dB			TO
5412		Hybrid: Variable	Hybrid: Moderate	Hybrid: +6dB			RF

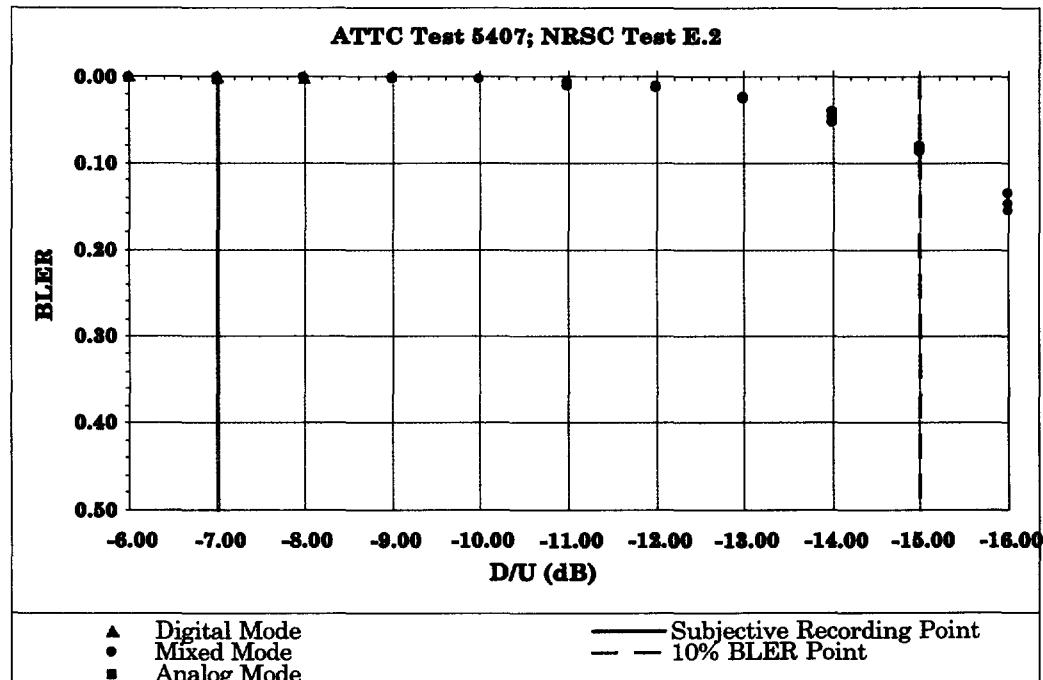


**Figure 30 - Objective Test Results – Digital IBOC System Performance in the Presence of Single First-Adjacent Channel Interference and Urban Slow Multipath (NRSC E.2)**

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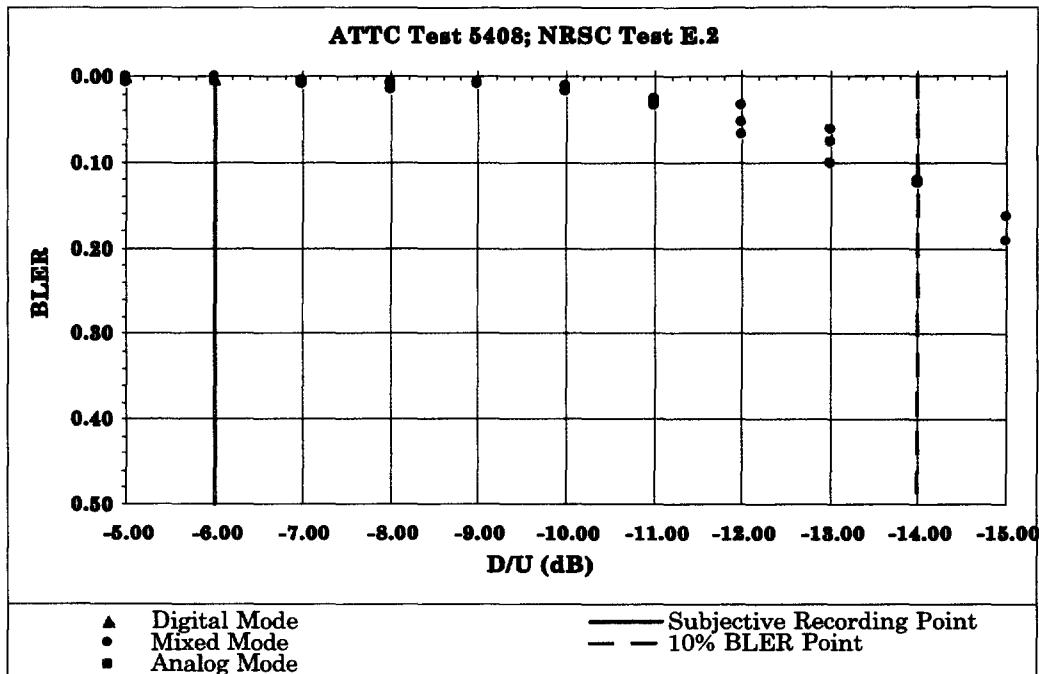


**Figure 31 - Objective Test Results – Digital IBOC System Performance in the Presence of Single First-Adjacent Channel Interference and Urban Fast Multipath (NRSC E.2)**

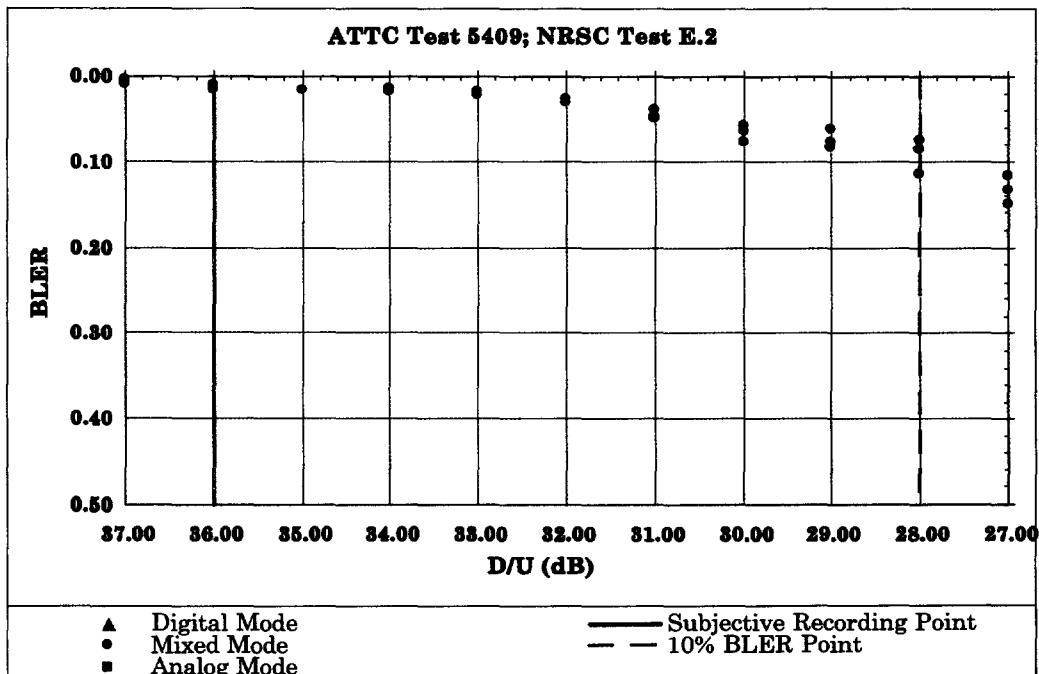


**Figure 32 - Objective Test Results – Digital IBOC System Performance in the Presence of Single First-Adjacent Channel Interference and Terrain Obstructed Multipath (NRSC E.2)**

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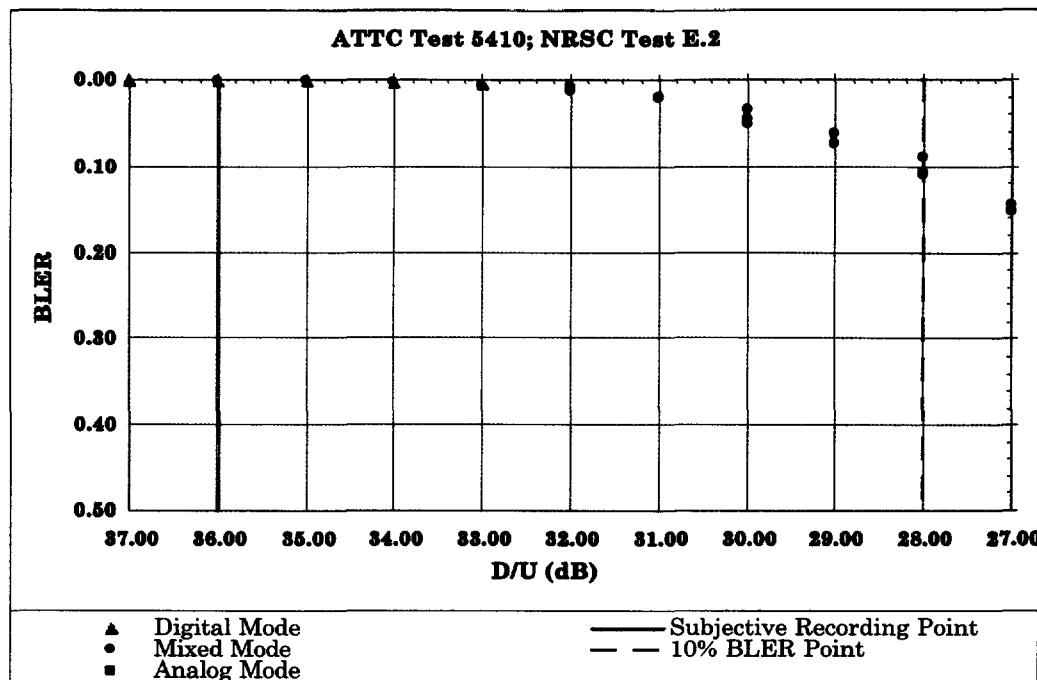


**Figure 33 - Objective Test Results – Digital IBOC System Performance in the Presence of Single First-Adjacent Channel Interference and Rural Fast Multipath (NRSC E.2)**

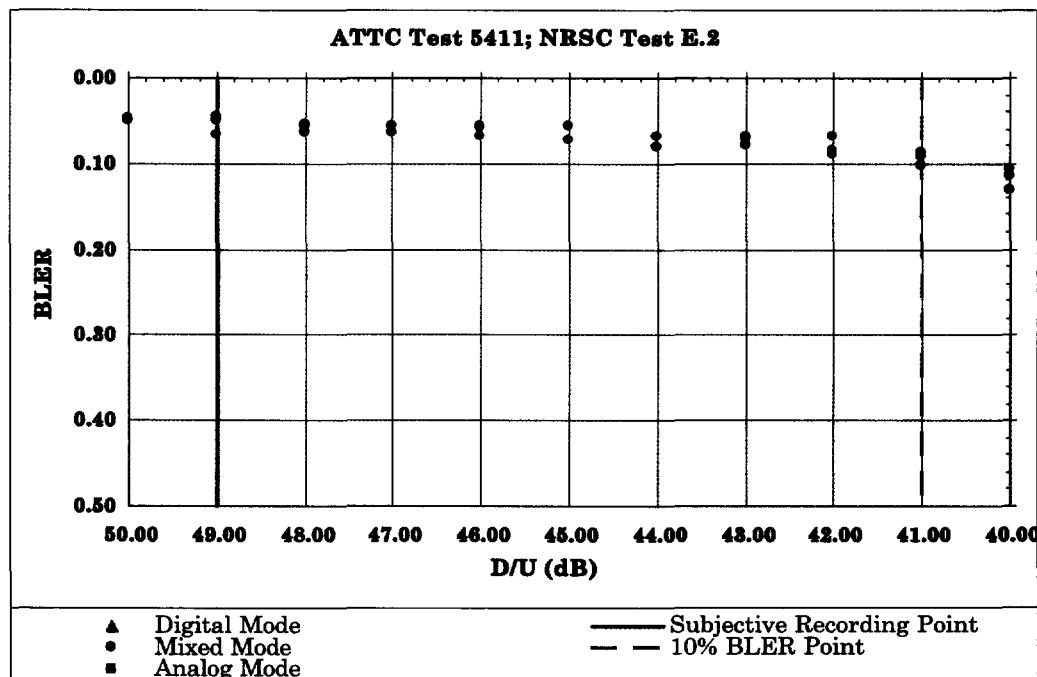


**Figure 34 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual First-Adjacent Channel Interference and Urban Slow Multipath (NRSC E.2)**

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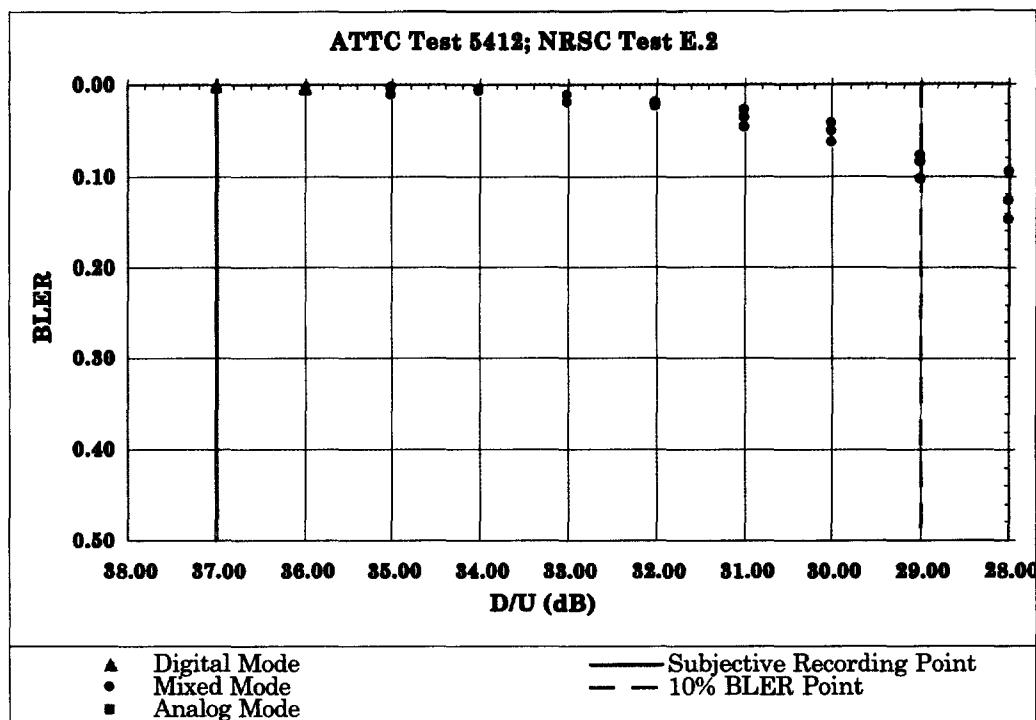


**Figure 35 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual First-Adjacent Channel Interference and Urban Fast Multipath (NRSC E.2)**



**Figure 36 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual First-Adjacent Channel Interference and Terrain Obstructed Multipath (NRSC E.2)**

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**Figure 37 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual First-Adjacent Channel Interference and Rural Fast Multipath (NRSC E.2)**

**Table 30 – Subjective Test Scenarios – Single and Dual First-Adjacent Channel and Multipath Interference (NRSC E.2)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj	Co-Channel	Multi-path	RX	Audio Cut
6017		Hybrid: 10% BLER – 8dB	Hybrid: Moderate				US	IBOC	Bach
6018		Analog: 10% BLER – 8dB	Analog: Moderate				US	2 Auto	Bach
6019		Hybrid: 10% BLER – 8dB	Hybrid: Moderate				US	IBOC	Grant
6020		Analog: 10% BLER – 8dB	Analog: Moderate				US	2 Auto	Grant
6021		Hybrid: 10% BLER – 8dB	Hybrid: Moderate				UF	IBOC	Ibert
6022		Analog: 10% BLER – 8dB	Analog: Moderate				UF	2 Auto	Ibert
6023		Hybrid: 10% BLER – 8dB	Hybrid: Moderate				UF	IBOC	Simon
6024		Analog: 10% BLER – 8dB	Analog: Moderate				UF	2 Auto	Simon
6025		Hybrid: 10% BLER – 8dB	Hybrid: Moderate				TO	IBOC	1812
6026		Analog: 10% BLER – 8dB	Analog: Moderate				TO	2 Auto	1812

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#	Lower 2 <sup>nd</sup> adj.	Lower 3 <sup>rd</sup> adj.	Desired	Upper 2 <sup>nd</sup> adj.	Upper 3 <sup>rd</sup> adj.	Co-Channel	Multi-path	EX	Audio Cut
6027		Hybrid: 10% BLER - 8dB	Hybrid: Moderate				TO	IBOC	Santana
6028		Analog: 10% BLER - 8dB	Analog: Moderate				TO	2 Auto	Santana
6029		Hybrid: 10% BLER - 8dB	Hybrid: Moderate				RF	IBOC	Saito
6030		Analog: 10% BLER - 8dB	Analog: Moderate				RF	2 Auto	Saito
6031		Hybrid: 10% BLER - 8dB	Hybrid: Moderate				RF	IBOC	MMW
6032		Analog: 10% BLER - 8dB	Analog: Moderate				RF	2 Auto	MMW
6033		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			US	IBOC	Carmen
6034		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			US	2 Auto	Carmen
6035		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			US	IBOC	Stansfield
6036		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			US	2 Auto	Stansfield
6037		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			UF	IBOC	Messiah
6038		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			UF	2 Auto	Messiah
6039		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			UF	IBOC	Basil
6040		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			UF	2 Auto	Basil
6041		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			TO	IBOC	Ibert
6042		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			TO	2 Auto	Ibert
6043		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			TO	IBOC	CSNY
6044		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			TO	2 Auto	CSNY
6045		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			RF	IBOC	Stravinsk y
6046		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			RF	2 Auto	Stravinsk y
6047		Hybrid: 10% BLER - 8dB	Hybrid: Moderate	Hybrid: +6dB			RF	IBOC	Clapton
6048		Analog: 10% BLER - 8dB	Analog: Moderate	Analog: +6dB			RF	2 Auto	Clapton

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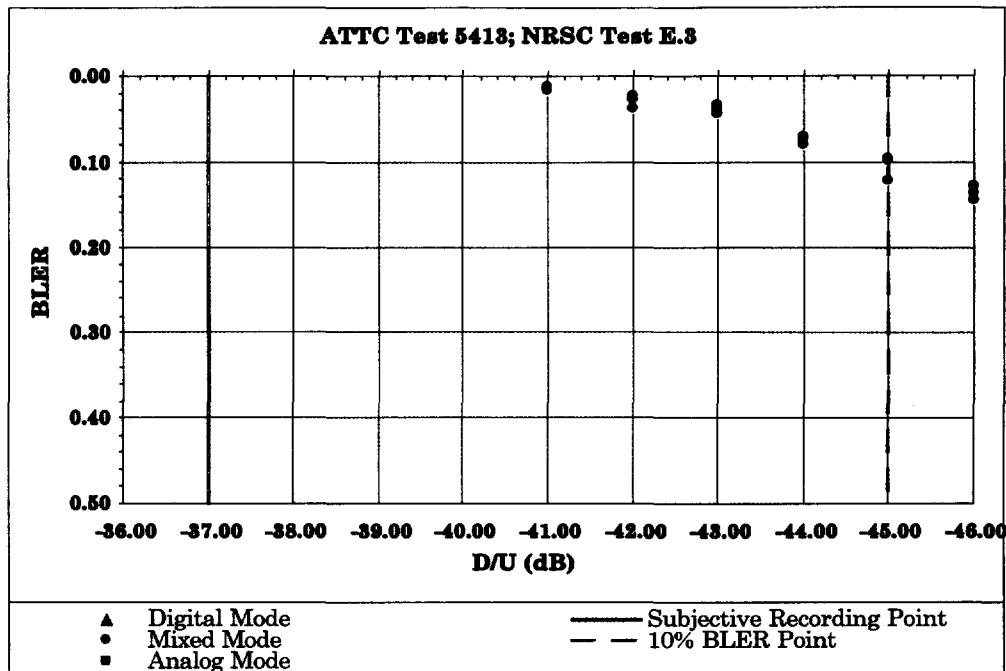
### **5.7.3. IBOC Performance in the Presence of Single and Dual Second-Adjacent and Simultaneous Single Second- and Single First-Adjacent Channel Interference with Multipath (NRSC E.3)**

Table 31 summarizes the interference scenario for the objective performance test of the digital IBOC system in the presence of single and dual second-adjacent channel interference as well as simultaneous single second-adjacent and single first-adjacent channel interference with multipath (NRSC E.3). Figure 38 through Figure 49 illustrate the measurements at D/U ratios above and below *10% BLER*. The 10% BLER point minus 8 dB was used to establish the interference level for the subsequent subjective recordings. Table 32 tabulates the subjective test scenarios.

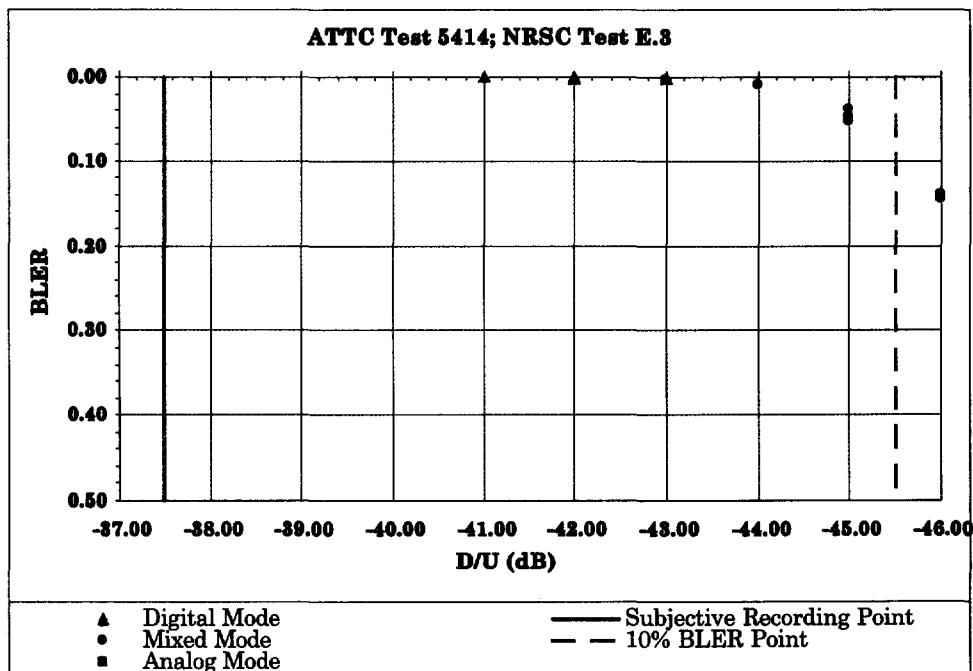
**Table 31 – IBOC Performance Scenarios – Single and Dual Second-Adjacent and Simultaneous Single Second- and Single First-Adjacent Channel Interference (NRSC E.3)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj.	Co-Channel	Multipath
5413	Hybrid: Variable		Hybrid: Moderate				US
5414	Hybrid: Variable		Hybrid: Moderate				UF
5415	Hybrid: Variable		Hybrid: Moderate				TO
5416	Hybrid: Variable		Hybrid: Moderate				RF
5417	Hybrid: Variable		Hybrid: Moderate	Hybrid: +6dB			US
5418	Hybrid: Variable		Hybrid: Moderate	Hybrid: +6dB			UF
5419	Hybrid: Variable		Hybrid: Moderate	Hybrid: +6dB			TO
5420	Hybrid: Variable		Hybrid: Moderate	Hybrid: +6dB			RF
5421	Hybrid: Variable		Hybrid: Moderate		Hybrid: -20dB		US
5422	Hybrid: Variable		Hybrid: Moderate		Hybrid: -20dB		UF
5423	Hybrid: Variable		Hybrid: Moderate		Hybrid: -20dB		TO
5424	Hybrid: Variable		Hybrid: Moderate		Hybrid: -20dB		RF

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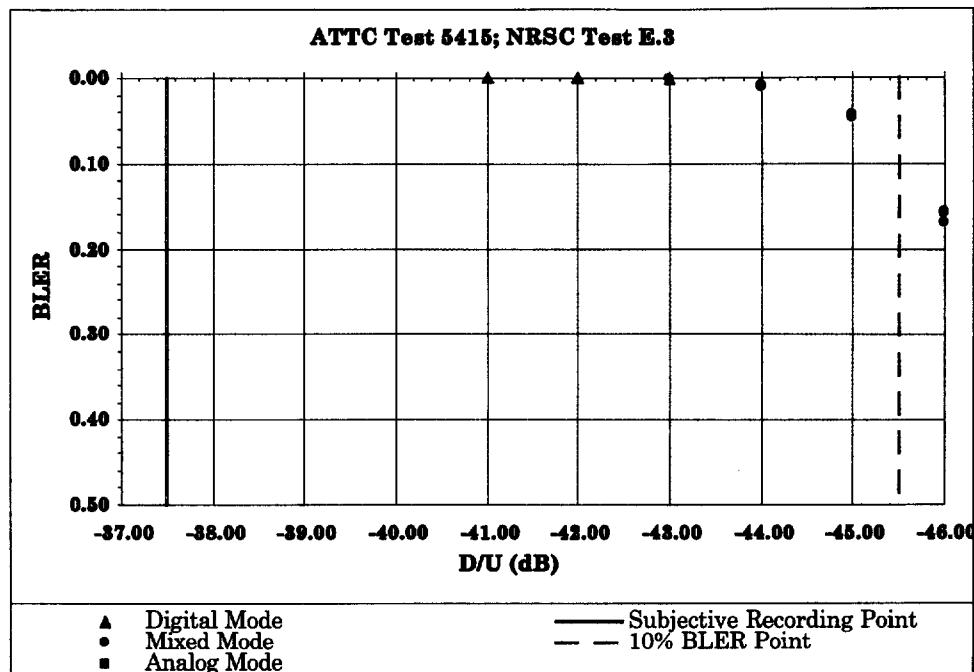


**Figure 38 - Objective Test Results – Digital IBOC System Performance in the Presence of Single Second-Adjacent Channel Interference with Urban Slow Multipath (NRSC E.3)**

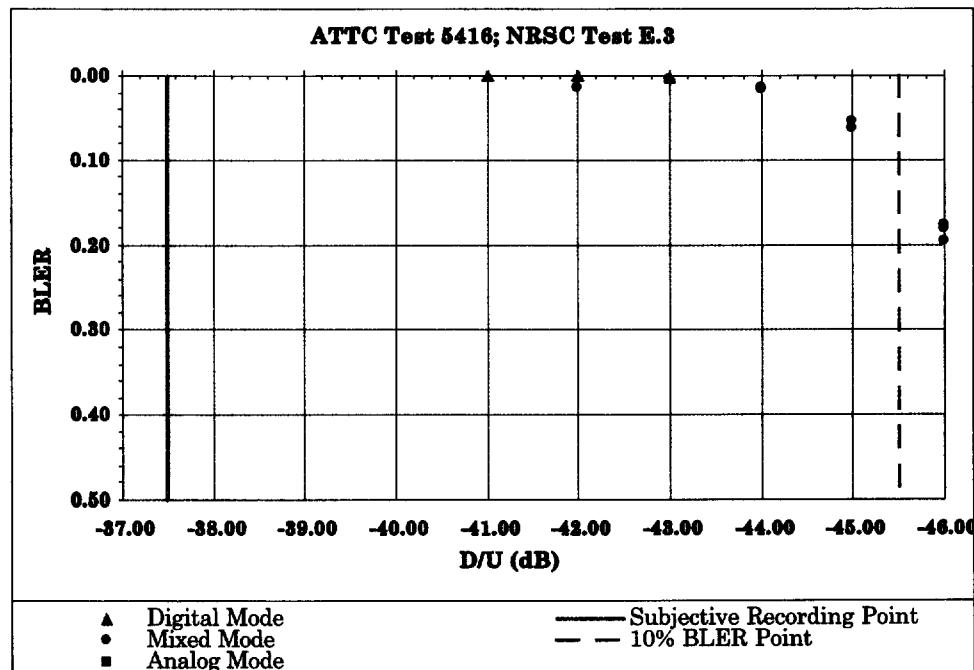


**Figure 39 - Objective Test Results – Digital IBOC System Performance in the Presence of Single Second-Adjacent Channel Interference with Urban Fast Multipath (NRSC E.3)**

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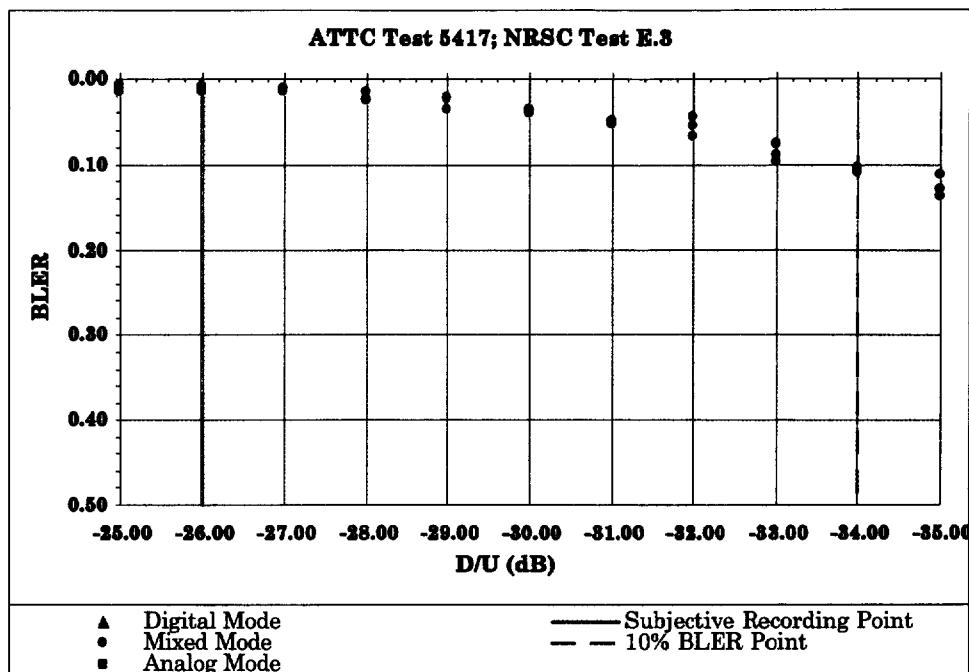


**Figure 40 - Objective Test Results – Digital IBOC System Performance in the Presence of Single Second-Adjacent Channel Interference with Terrain Obstructed Multipath (NRSC E.8)**

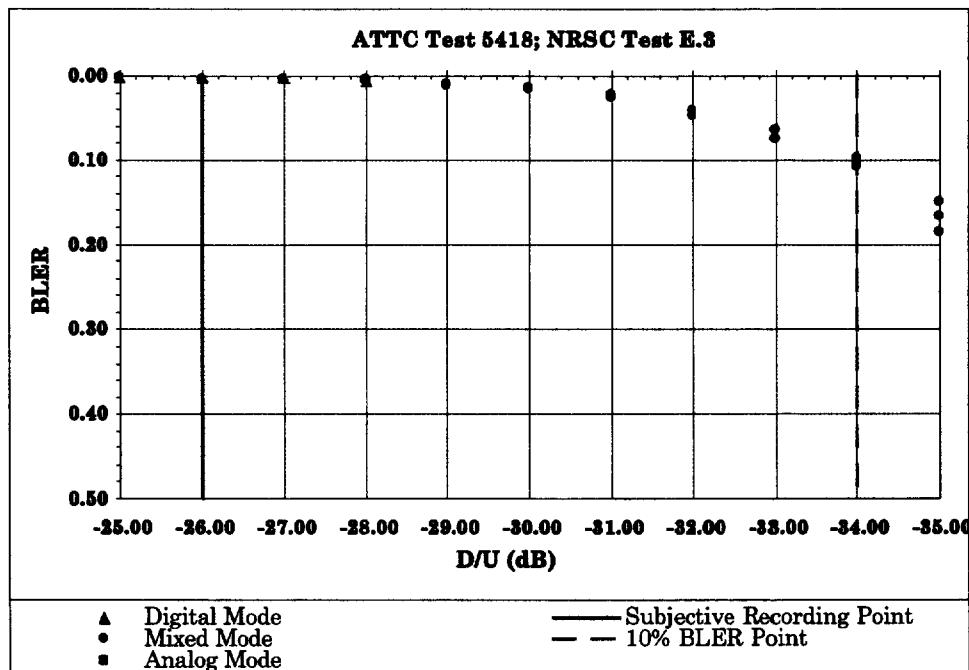


**Figure 41 - Objective Test Results – Digital IBOC System Performance in the Presence of Single Second-Adjacent Channel Interference with Rural Fast Multipath (NRSC E.8)**

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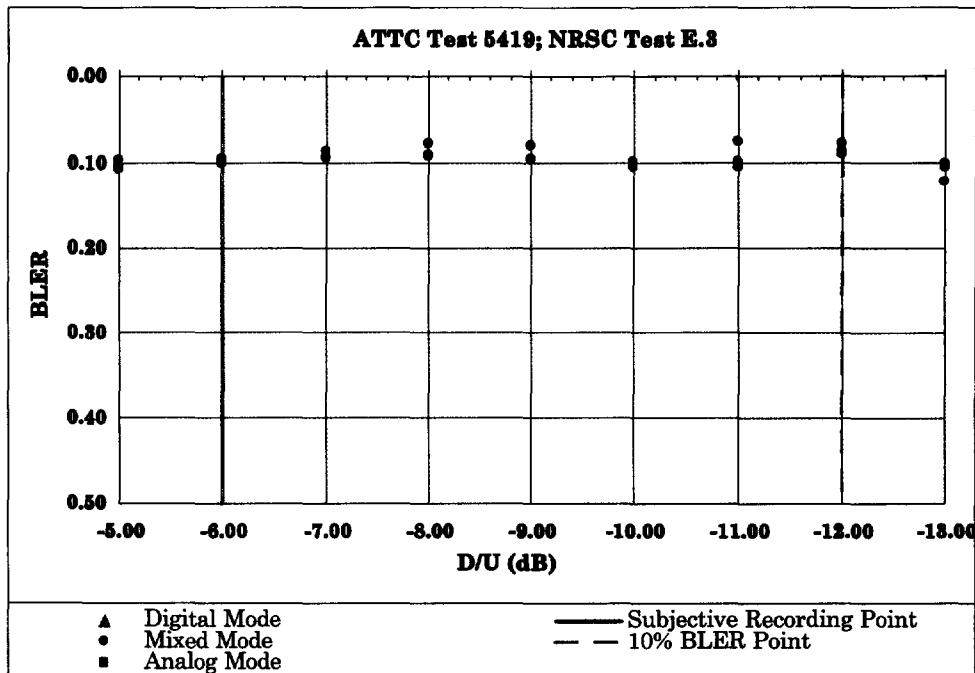


**Figure 42 - Objective Test Results – Digital IBOC System Performance in the Presence of Simultaneous Single Second- and Single First-Adjacent Channel Interference with Urban Slow Multipath (NRSC E.3)**

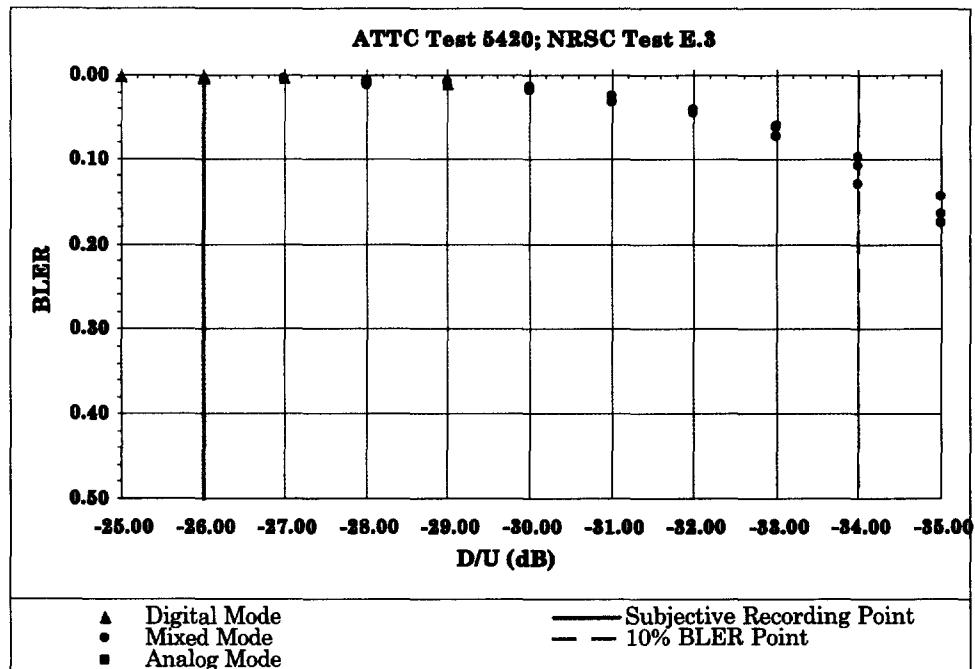


**Figure 43 - Objective Test Results – Digital IBOC System Performance in the Presence of Simultaneous Single Second- and Single First-Adjacent Channel Interference with Urban Fast Multipath (NRSC E.3)**

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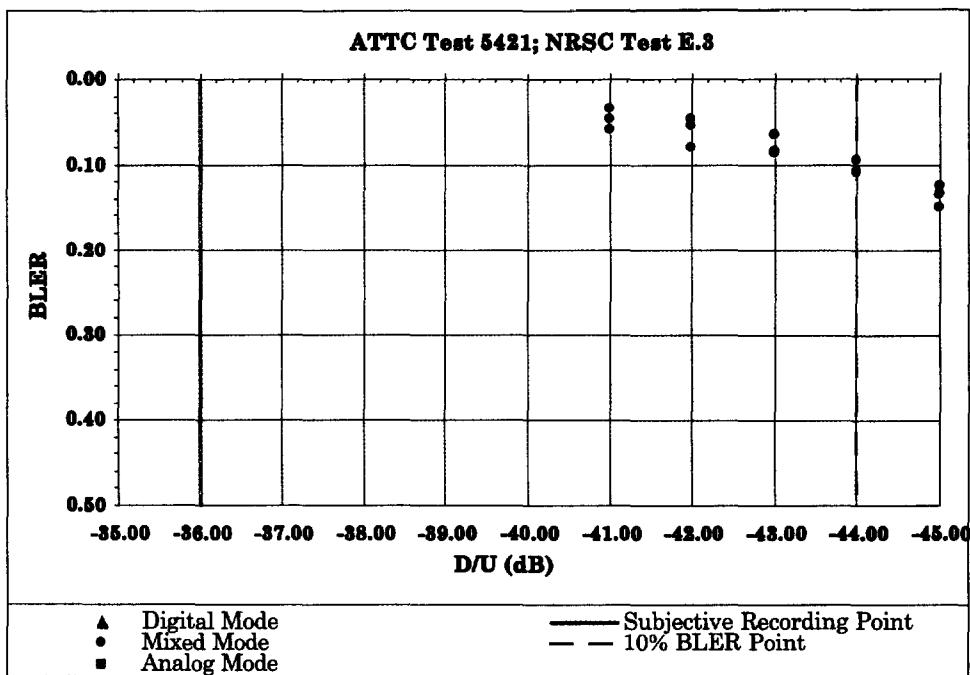


**Figure 44 - Objective Test Results – Digital IBOC System Performance in the Presence of Simultaneous Single Second- and Single First-Adjacent Channel Interference with Terrain Obstructed Multipath (NRSC E.3)**

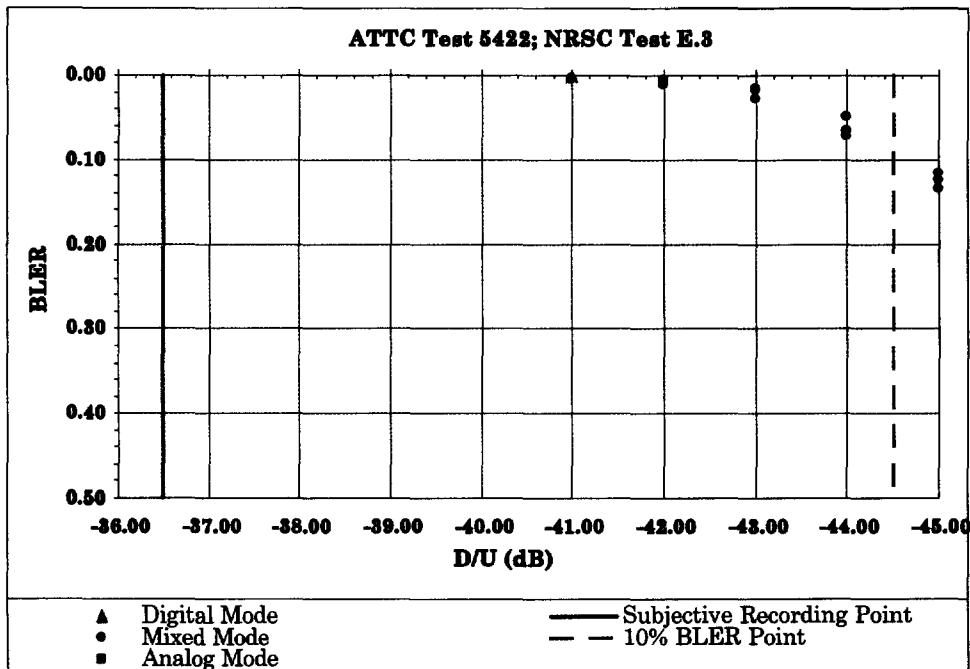


**Figure 45 - Objective Test Results – Digital IBOC System Performance in the Presence of Simultaneous Single Second- and Single First-Adjacent Channel Interference with Rural Fast Multipath (NRSC E.3)**

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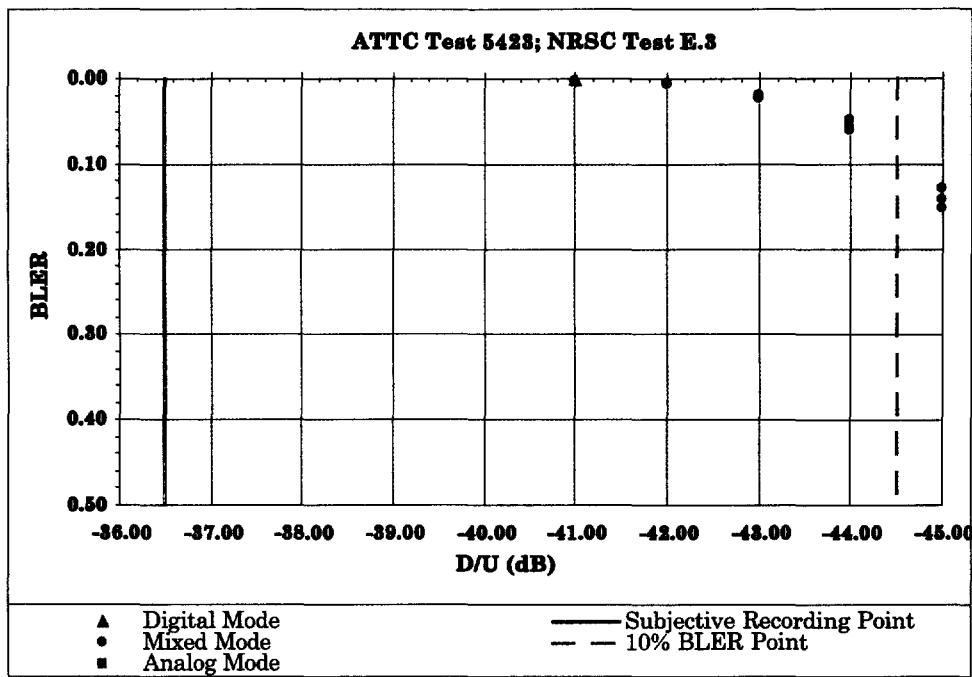


**Figure 46 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual Second-Adjacent Channel Interference with Urban Slow Multipath (NRSC E.3)**

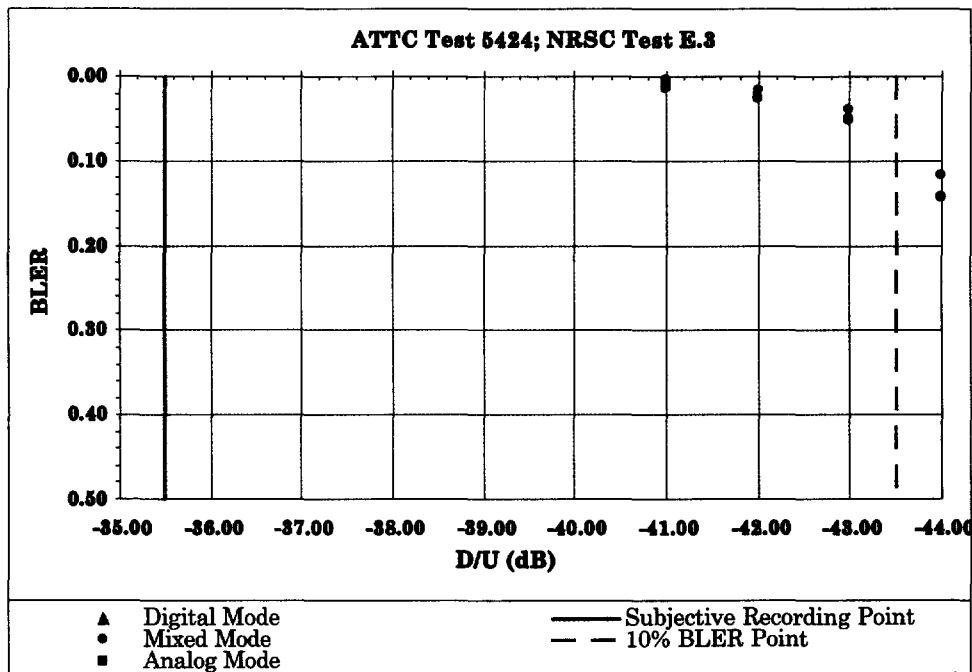


**Figure 47 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual Second-Adjacent Channel Interference with Urban Fast Multipath (NRSC E.3)**

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**Figure 48 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual Second-Adjacent Channel Interference with Terrain Obstructed Multipath (NRSC E.3)**



**Figure 49 - Objective Test Results – Digital IBOC System Performance in the Presence of Dual Second-Adjacent Channel Interference with Rural Fast Multipath (NRSC E.3)**

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**Table 32 - Subjective Test Scenarios - Single and Dual Second-Adjacent and Simultaneous Single Second- and Single First-Adjacent Channel Interference with Multipath (NRSC E.3)**

#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj	Co-Channel	Multipath	RX	Audio Cut
6049	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				US	IBOC	Bach
6050	Analog: 10% BLER - 8dB		Analog: Moderate				US	2 Auto	Bach
6051	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				US	IBOC	Grant
6052	Analog: 10% BLER - 8dB		Analog: Moderate				US	2 Auto	Grant
6053	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				UF	IBOC	Ibert
6054	Analog: 10% BLER - 8dB		Analog: Moderate				UF	2 Auto	Ibert
6055	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				UF	IBOC	Simon
6056	Analog: 10% BLER - 8dB		Analog: Moderate				UF	2 Auto	Simon
6057	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				TO	IBOC	1812
6058	Analog: 10% BLER - 8dB		Analog: Moderate				TO	2 Auto	1812
6059	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				TO	IBOC	Santana
6060	Analog: 10% BLER - 8dB		Analog: Moderate				TO	2 Auto	Santana
6061	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				RF	IBOC	Saito
6062	Analog: 10% BLER - 8dB		Analog: Moderate				RF	2 Auto	Saito
6063	Hybrid: 10% BLER - 8dB		Hybrid: Moderate				RF	IBOC	MMW
6064	Analog: 10% BLER - 8dB		Analog: Moderate				RF	2 Auto	MMW
6065	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			US	IBOC	Carmen
6066	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			US	2 Auto	Carmen
6067	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			US	IBOC	Stansfield
6068	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			US	2 Auto	Stansfield
6069	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			UF	IBOC	Messiah
6070	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			UF	2 Auto	Messiah
6071	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			UF	IBOC	Basil
6072	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			UF	2 Auto	Basil
6073	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			TO	IBOC	Ibert
6074	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			TO	2 Auto	Ibert
6075	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			TO	IBOC	CSNY
6076	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			TO	2 Auto	CSNY
6077	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			RF	IBOC	Stravinsky

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#	Lower 2 <sup>nd</sup> adj.	Lower 1 <sup>st</sup> adj.	Desired	Upper 1 <sup>st</sup> adj.	Upper 2 <sup>nd</sup> adj	Co-Channel	Mult-path	RX	Audio Cut
6078	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			RF	2 Auto	Stravinsky
6079	Hybrid: 10% BLER - 8dB		Hybrid: Moderate	Hybrid: +6dB			RF	IBOC	Clapton
6080	Analog: 10% BLER - 8dB		Analog: Moderate	Analog: +6dB			RF	2 Auto	Clapton
6081	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		US	IBOC	Bach
6082	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		US	2 Auto	Bach
6083	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		US	IBOC	Grant
6084	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		US	2 Auto	Grant
6085	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		UF	IBOC	Ibert
6086	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		UF	2 Auto	Ibert
6087	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		UF	IBOC	Simon
6088	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		UF	2 Auto	Simon
6089	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		TO	IBOC	1812
6090	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		TO	2 Auto	1812
6091	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		TO	IBOC	Santana
6092	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		TO	2 Auto	Santana
6093	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		RF	IBOC	Saito
6094	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		RF	2 Auto	Saito
6095	Hybrid: 10% BLER - 8dB		Hybrid: Moderate		Hybrid: -20dB		RF	IBOC	MMW
6096	Analog: 10% BLER - 8dB		Analog: Moderate		Analog: -20dB		RF	2 Auto	MMW

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**5.8. IBOC Acquisition Performance (NRSC H)**

Table 33 summarizes the acquisition time of the IBOC receiver measured using various signal and interference scenarios.

**Table 33 – IBOC Acquisition Performance (NRSC H)**

#	Lower 1 <sup>st</sup> adj.	Desired	Acquisition Time (milliseconds)	Mode Acquired
5901		Hybrid: Strong	135	Analog
5902		Hybrid: Moderate	135	Analog
5903	Analog: +6dB	Hybrid: Strong	135	Analog
5904	Analog: +6dB	Hybrid: Moderate	135	Analog

## **6. Acknowledgements**

The Advanced Television Technology Center (ATTC) and its staff are grateful to the representatives of iBiquity Digital for their support during this testing. ATTC wishes to thank Charles Rhodes for his expertise and guidance.

The ATTC is a private, non-profit enterprise formed by a coalition of broadcasting companies and industry organizations. Its members are Advanced Television Systems Committee (ATSC), Broadcom, CBS, Mitsubishi Electric Corporation, NxtWave, Philips, Public Broadcasting Service (PBS), and Sony.

For the testing of the iBiquity IBOC DAB System, ATTC staff included: • Paul K. DeGonia, *Executive Director* • Charles W. Einolf, Jr., *Deputy Executive Director* • Thomas Boyer, *RF Systems Test Engineer* • Joseph Caffrey, *Radio/Television Systems Engineer* • Debbie Espinoza, *Office Administrator* • Steve Thomas, *Technology Specialist* • Sean C. Wallace, *Systems Engineer*.